

## CLAIMS

What is claimed is:

1. A method for improving receive performance in a data network, the method comprising:  
receiving up to a plurality of indications denoting the start of frame transmission on a  
corresponding plurality of communication links;  
identifying that the one or more of the received indications denote the start of a flow; and  
dedicating a receive buffer from a plurality of receive buffers to receive all frames  
associated with the identified flow.

2. The method of claim 1, wherein identifying the start of a flow involves analyzing  
information embedded within each of the received frames to determine source and destination  
information associated with said frames.

3. The method of claim 1, further comprising the step of determining whether the identified  
flow requires preservation of transmission order.

4. The method of claim 3, further comprising promoting frames of the received flow in the  
order received, unless it is determined that the identified flow requires preservation of frame  
order.

5. The method of claim 4, further comprising assigning a pointer value to each frame of the  
identified flow corresponding to commencement of transmission, creating a list of pointer values

3 corresponding to transmission order if it is determined that the identified flow requires  
4 preservation of transmission order.

1 6. The method of claim 1, further comprising promoting the received frames from the  
2 dedicated buffer in the order received, without regard to frame transmission order, unless it is  
3 determined that the identified flow requires preservation of transmission order.

1 7. The method of claim 6, further comprising determining whether the identified flow  
2 requires preservation of transmission order by analyzing protocol identification information  
3 embedded within the received frames.

1 8. The method of claim 1, wherein the buffer order does not correspond to the order of  
2 frame transmission.

1 9. An apparatus comprising:  
2 a plurality of buffers, each having a plurality of records; and  
3 a network interface, coupled to the buffer, to receive a plurality of frames from a plurality  
4 of communication links of a data network, to identify whether received frames indicate a flow  
5 condition and to dedicate a buffer from the plurality of buffers to accommodate all frames  
6 received associated with the identified flow condition.

1 10. The apparatus of claim 9, wherein the network interface identifies the flow condition by  
2 analyzing information embedded within the received frames for source and destination  
3 information associated with said frames.

1 11. The apparatus of claim 9, wherein the network interface determines whether identified  
2 flow conditions requires preservation of frame transmission order.

1 12. The apparatus of claim 9, wherein the network interface promotes frames from the  
2 dedicated buffer in the order received, unless preservation of frame transmission order is  
3 required.

1 13. The apparatus of claim 12, wherein the network interface assigns a pointer value to each  
2 frame of the identified flow corresponding to commencement of transmission of the frame to  
3 create a list of pointer values associated with each frame corresponding to transmission order if it  
4 is determined that preservation of frame transmission order is required.

1 14. The apparatus of claim 19, wherein the plurality of communication links are part of an  
2 Ethernet network.

1 15. A data network comprising:  
2 a network device communicatively coupled with one or more network devices, the  
3 network device including:  
4 one or more buffers, each having a plurality of records; and  
5 a network interface, coupled to the buffers, to receive a plurality of frames from a  
6 plurality of communication links of the data network, to identify whether the received  
7 frames indicate existence of a flow condition, and to dedicate a buffer from the plurality  
8 of buffers to accommodate all frames received associated with the identified flow  
9 condition.

